

IN THE CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A method for adaptive-rate communication, comprising:
setting a first target signal margin with respect to an actual noise level and a second target signal margin with respect to a predetermined noise level;
measuring the actual noise level at a receiver on a communication channel between a transmitter and the receiver; and
selecting a transmission rate at which to transmit a signal on the channel such that for the selected transmission rate, a first signal-to-noise ratio (SNR) of the signal relative to the measured actual noise level is greater than a baseline SNR level by at least the first target signal margin, and a second SNR of the signal relative to the predetermined noise level is greater than the baseline SNR by at least the second target signal margin.
2. (Original) A method according to claim 1, wherein the predetermined noise level comprises a worst-case noise level.
3. (Original) A method according to claim 2, wherein the communication channel is one of a plurality of channels in a communication system, and wherein selecting the transmission rate comprises calculating the worst-case noise level based on the measured actual noise level on the plurality of the channels, and setting the transmission rate so that the level of the signal is greater than the calculated worst-case noise level by at least the second target signal margin.
4. (Original) A method according to claim 3; wherein measuring the actual noise level comprises conveying an indication of the actual noise level from the receiver to the transmitter for use in calculating the worst-case noise level.

5. (Original) A method according to claim 1, wherein selecting the transmission rate comprises selecting a maximum rate among a plurality of available rates on the channel at which the first SNR is greater than the baseline SNR level by at least the first target signal margin, and the second SNR is greater than the baseline SNR level by at least the second target signal margin.

6. (Original) A method according to claim 5, wherein selecting the maximum rate comprises measuring the level of the signal at each of the plurality of the available rates, and choosing the maximum rate based on the measured level of the signal.

7. (Original) A method according to claim 6, and comprising conveying from the receiver to the transmitter an indication of which of the available rates can be used on the channel, based on the measured levels of the noise and the signal at the plurality of the rates, and wherein selecting the transmission rate comprises selecting the transmission rate at the transmitter based on the indication.

8. (Original) A method according to claim 1, wherein selecting the transmission rate comprises selecting the rate at which to transmit a digital subscriber line (DSL) signal between a central office and customer premises.

9. (Original) A method according to claim 8, wherein the DSL signal comprises a Single-pair High-speed DSL (SHDSL) signal.

10. (Original) A method according to claim 1, wherein selecting the transmission rate comprises setting a variable bit-loading rate for the symbols to be transmitted on the channel.

11. (Original) A method according to claim 10, wherein selecting the transmission rate comprises setting a baud rate to be used for both upstream and downstream transmissions on the channel, and wherein setting the variable bit-loading rate comprises setting different, respective bit-loading rates for the upstream and downstream transmissions.

12. (Original) Communication apparatus, comprising:

a transmitter, configured to transmit a signal over a communication channel at a transmission rate; and

a receiver, adapted to receive the signal over the communication channel, and further adapted to measure an actual noise level on the communication channel, and to cause the

transmission rate at which the transmitter is to transmit the signal to be selected such that for the selected transmission rate, a first signal-to-noise ratio (SNR) of the signal relative to the measured actual noise level is greater than a baseline SNR level by at least a first target signal margin, and a second SNR of the signal relative to a predetermined noise level is greater than the baseline SNR by at least a second target signal margin.

13. (Original) Apparatus according to claim 12, wherein the predetermined noise level comprises a worst-case noise level.

14. (Original) Apparatus according to claim 13, wherein the communication channel is one of a plurality of channels in a communication system, and wherein the worst-case noise level is calculated based on the measured actual noise level on the plurality of the channels.

15. (Original) Apparatus according to claim 14, wherein the receiver is adapted to convey an indication of the actual noise level to the transmitter for use in calculating the worst-case noise level.

16. (Original) Apparatus according to claim 12, wherein the transmission rate is selected to be a maximum rate among a plurality of available rates on the channel at which the first SNR is greater than the baseline SNR level by at least the first target signal margin, and the second SNR is greater than the baseline SNR by at least the second target signal margin.

17. (Original) Apparatus according to claim 16, wherein the receiver is adapted to measure the level of the signal at each of the plurality of the available rates, and wherein the maximum rate is chosen based on the measured level of the signal.

18. (Original) Apparatus according to claim 17, wherein the receiver is adapted to convey to the transmitter an indication of which of the available rates can be used on the channel, based on the measured levels of the noise and the signal at the plurality of the rates for use by the transmitter in selecting the transmission rate.

19. (Original) Apparatus according to claim 12, wherein the communication channel comprises a digital subscriber line (DSL) link between a central office and customer premises.

20. (Original) Apparatus according to claim 19, wherein the DSL link comprises a Single-pair High-speed DSL (SHDSL) link.

21. (Original) Apparatus according to claim 12, wherein the transmission rate is selected by setting a variable baud rate and setting a variable bit-loading rate for the symbols to be transmitted on the channel.

22. (Original) Apparatus according to claim 21, wherein the same baud rate is set for both upstream and downstream transmissions on the channel, while different, respective bit-loading rates are set for the upstream and downstream transmissions.

23-33. (Canceled)